



AmSpec Iberia S.L.Unipersonal

Algeciras Laboratory

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ANALYTICAL REPORT - PROGRESS 3

Sample Information	Laboratory Information
*Y/ Ref: N/A *Label: N/A *Origin: AZORES *Grade: FUEL OIL *Seal N°: 4385336-4385333-4385356-4385357 *Identification: CLIPPER ENYO *Sampling date: 10/02/2022 *Sampled by: SUBMITTED SAMPLE *Description: SHIP'S TANKS COMPOSITE (TK 1P, TK 1S & TK 2S)	Job Number: 13694 O/ Ref: 649-22-00149 Label: AMSPEC Sample Package: 4 X 1L PLASTIC BOTTLE Seal N°: N/A Date of reception: 16/02/2022 Date Analysis started: 16/02/2022 Date Analysis completed: Description: FUEL OIL
*Customer: NuStar Energy L.P *Address:	

Parameter	Units	Method	Result	Limit	Note
Density at 15°C	g/mL	ISO 12185:1996/Cor.1:2001	0,9854		
Kinematic viscosity at 50 °C (Procedure A)	mm²/s	ISO 3104:2020	292,7		
Water by distillation	% (v/v)	ISO 3733:1999	0,1		
Sulphur content	% (m/m)	ISO 8754:2003	2,97		
# Flash point (Proced. B - Electric ignitor)	°C	ISO 2719:2016	82,5		
# Pour point	°C	ISO 3016:2019	-15		
# Carbon Residue Micro Method	% (m/m)	ISO 10370:2014	14,73		
# Ash	% (m/m)	ISO 6245:2001	0,101		
# Aluminium	mg/kg	IP 501/05	93		
# Silicon	mg/kg	IP 501/05	61		
# Al + Si	mg/kg	IP 501/05	154		
# Vanadium	mg/kg	IP 501/05	225		
# Sodium	mg/kg	IP 501/05	16		
ULOS					
# Calcium	mg/kg	IP 501/05	13		
# Zinc	mg/kg	IP 501/05	6		
# Phosphorous	mg/kg	IP 501/05	14		
# Total Sediment Aged (Proced. A) [TSP]	% (m/m)	ISO 10307-2:2009/Cor 1:2010	In Progress		
# Total Acid Number	mg KOH /gr	ASTM D664 - 18e2	0,34		
# H ₂ S Content	mg/kg	IP 570/15	<0,60		
# CCAI		ISO 8217:2017/Calculated	849		

(I) 102,8 Kpa; Absolute Barometric Pressure.

*The laboratory is not responsible of the information provided by the customer, sample owner or the taker.

The test results shown on this report affect only to the samples received in this laboratory, as they were received, and not necessarily to the whole from which these samples were drawn.

Precision parameters apply in the evaluation of the test results specified above. Please also refer to ASTM D3244 (Excep for RFG), IP 367 and appendix E of IP standard methods for analysis and testing in respect to the utilization of test data to determine conformance with the specifications.

The samples will be kept for a period of three months.

Estimated uncertainties are not included in the report, however they are available upon customer request.

This report cannot be partially reproduced without the written approval of the issuing laboratory.

Tests marked with # are not included in the scope of the ISO 17025 accreditation.



Date of Report
 Name/s
 Signature/s

17/02/2022
 Juan V. López-Canales
 Chief Analyst



Authorized by Juan José Peña
 Laboratory Manager